

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

The list of currently pending claims is presented below.

1-44. (Canceled)

1 45. (Currently amended) An enriched $\alpha(2-3)$ sialyllactose formed in a dairy
2 source selected from the group consisting of milk, colostrum and a cheese processing mixture by
3 the process comprising:
4 a) contacting a catalytic amount of at least one $\alpha(2-3)$ trans-sialidase with a the
5 dairy source, wherein the dairy source comprises lactose and sialic acid donors to form a dairy
6 source/trans-sialidase mixture; and
7 b) incubating said dairy source/trans-sialidase mixture under conditions suitable
8 for to effect the $\alpha(2-3)$ trans-sialidase-activity-catalyzed transfer of sialic acid from the sialic
9 acid donors to the lactose;
10 thereby forming said enriched $\alpha(2-3)$ sialyllactose in said dairy source.

1 46. (Currently amended) An enriched $\alpha(2-3)$ sialyllactose formed in a cheese
2 processing waste stream by the process comprising:
3 a) contacting a catalytic amount of at least one $\alpha(2-3)$ trans-sialidase with a the
4 cheese processing waste stream, wherein the cheese processing waste stream comprises lactose
5 and sialic acid donors to form a cheese processing waste stream/trans-sialidase mixture; and
6 b) incubating said cheese processing waste stream/trans-sialidase mixture under
7 conditions suitable for to effect the $\alpha(2-3)$ trans-sialidase-activity-catalyzed transfer of sialic
8 acid from the sialic acid donors to the lactose;
9 thereby forming said enriched $\alpha(2-3)$ sialyllactose in said cheese processing waste stream.

1 47. (New) The enriched $\alpha(2-3)$ sialyllactose of claim 45 or 46, wherein said $\alpha(2-$
2 $3)$ trans-sialidase is a Kinetoplastid trans-sialidase.

1 **48.** (New) The enriched $\alpha(2-3)$ sialyllactose of claim **45** or **46**, wherein said $\alpha(2-$
2 3) trans-sialidase is encoded by a gene isolated from a species of the genera selected from the
3 group consisting of Trypanosoma, Endotrypanum and Pneumocystis.

1 **49.** (New) The enriched $\alpha(2-3)$ sialyllactose of claim **45** or **46**, wherein the $\alpha(2-3)$
2 trans-sialidase is recombinantly produced.

1 **50.** (New) The enriched $\alpha(2-3)$ sialyllactose of claim **45**, wherein the dairy
2 source/trans-sialidase mixture is incubated for at least 1 hour.

1 **51.** (New) The enriched $\alpha(2-3)$ sialyllactose of claim **46**, wherein the cheese
2 processing waste stream/trans-sialidase mixture is incubated for at least 1 hour.

1 **52.** (New) The enriched $\alpha(2-3)$ sialyllactose of claim **45**, wherein the dairy
2 source/trans-sialidase mixture is incubated at a temperature of about 5° C. to about 45° C.

1 **53.** (New) The enriched $\alpha(2-3)$ sialyllactose of claim **46**, wherein the cheese
2 processing waste stream/trans-sialidase mixture is incubated at a temperature of about 5° C. to
3 about 40° C.

1 **54.** (New) The enriched $\alpha(2-3)$ sialyllactose of claim **45**, wherein the dairy
2 source/trans-sialidase mixture has a pH of about 6 to about 8.

1 **55.** (New) The enriched $\alpha(2-3)$ sialyllactose of claim **46**, wherein the cheese
2 processing waste stream/trans-sialidase mixture has a pH of about 5 to about 8.

1 **56.** (New) The enriched $\alpha(2-3)$ sialyllactose of claim **46**, wherein the cheese
2 processing waste stream comprises a member selected from the group consisting of whole whey,
3 demineralized whey permeate, the regeneration stream from demineralized whey permeate, whey
4 permeate, whey powder and lactose.

1 **57.** (New) The enriched $\alpha(2-3)$ sialyllactose of claim **45**, further comprising
2 recovering $\alpha(2-3)$ sialyllactose from the dairy source/trans-sialidase mixture.

1 **58.** (New) The enriched $\alpha(2-3)$ sialyllactose of claim **46**, further comprising
2 recovering $\alpha(2-3)$ sialyllactose from the cheese processing waste stream/trans-sialidase mixture.

1 **59.** (New) The enriched $\alpha(2-3)$ sialyllactose of claim **57**, wherein the recovering
2 step comprises ultrafiltration of the incubated dairy source/trans-sialidase mixture to form an
3 ultrafiltrate.

1 **60.** (New) The enriched $\alpha(2-3)$ sialyllactose of claim **58**, wherein the comprising
2 recovering step comprises ultrafiltration of the incubated cheese processing waste stream/trans-
3 sialidase to form an ultrafiltrate.

1 **61.** (New) The enriched $\alpha(2-3)$ sialyllactose of claim **59**, wherein the recovery
2 step further comprises contacting said ultrafiltrate with an ion exchange resin.

1 **62.** (New) The enriched $\alpha(2-3)$ sialyllactose of claim **60**, wherein the recovery
2 step further comprises contacting said ultrafiltrate with an ion exchange resin.

1 **63.** (New) The enriched $\alpha(2-3)$ sialyllactose of claim **61**, wherein the ion
2 exchange resin is an anion exchange resin.

1 **64.** (New) The enriched $\alpha(2-3)$ sialyllactose of claim **62**, wherein the ion
2 exchange resin is an anion exchange resin.

1 **65.** (New) The enriched $\alpha(2-3)$ sialyllactose of claim **61**, wherein the ion
2 exchange resin is a cation exchange resin.

1 **66.** (New) The enriched $\alpha(2-3)$ sialyllactose of claim **62**, wherein the ion
2 exchange resin is a cation exchange resin.

1 **67.** (New) The enriched $\alpha(2-3)$ sialyllactose of claim **57**, wherein the recovering
2 step comprises:

3 (a) contacting said incubated dairy source/trans-sialidase mixture of step (ii) with
4 a solvent and extracting the $\alpha(2-3)$ sialyllactose with said solvent to form an $\alpha(2-3)$ sialyllactose
5 containing solvent;

6 (b) separating said $\alpha(2-3)$ sialyllactose containing solvent from said incubated
7 dairy source/trans-sialidase mixture; and

8 (c) isolating said $\alpha(2-3)$ sialyllactose from said $\alpha(2-3)$ sialyllactose containing
9 solvent.

1 **68. (New)** The enriched $\alpha(2-3)$ sialyllactose of claim **58**, wherein the recovering
2 step comprises:

3 (a) contacting said incubated cheese processing waste stream/trans-sialidase
4 mixture of step (ii) with a solvent and extracting the $\alpha(2-3)$ sialyllactose with said solvent to
5 form an $\alpha(2-3)$ sialyllactose containing solvent;

6 (b) separating said $\alpha(2-3)$ sialyllactose containing solvent from said incubated
7 cheese processing waste stream/trans-sialidase mixture; and

8 (c) isolating said $\alpha(2-3)$ sialyllactose from said $\alpha(2-3)$ sialyllactose containing
9 solvent.

1 **69. (New)** The enriched $\alpha(2-3)$ sialyllactose of claim **67** or **68**, wherein said
2 solvent is selected from the group consisting of water, C_1-C_5 alcohol and a mixture thereof.

1 **70. (New)** The enriched $\alpha(2-3)$ sialyllactose of claim **46**, wherein said cheese
2 processing waste stream is the mother liquor obtained by crystallizing lactose from whey.

1 **71. (New)** The enriched $\alpha(2-3)$ sialyllactose of claim **45** or **46**, wherein exogenous
2 $\alpha(2-3)$ sialyloligosaccharides are added during said incubating step.

1 **72. (New)** The enriched $\alpha(2-3)$ sialyllactose of claim **45**, further comprising the
2 step of processing the dairy source/trans-sialidase mixture for cheesemaking before the recovery
3 step.

1 **73. (New)** The enriched $\alpha(2-3)$ sialyllactose of claim **56**, wherein the lactose is
2 crystallized lactose, spray dried lactose, or edible lactose.

1 **74. (New)** The enriched $\alpha(2-3)$ sialyllactose of claim **45** or **46**, wherein the sialic
2 acid donors are $\alpha(2-3)$ sialosides.

1 **75. (New)** The enriched $\alpha(2-3)$ sialyllactose of claim **74**, wherein the $\alpha(2-3)$
2 sialosides are selected from the group consisting of κ casein, gangliosides and mixtures thereof.

1 **76. (New)** The enriched $\alpha(2-3)$ sialyllactose of claim **45** or **46**, wherein the sialic
2 acid donors are sialyl- $\alpha(2-3)$ - β -galactosides.